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THE GENTIAN OF THE TIDAL SHORES OF THE ST. LAWRENCE.

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(Plate 139.)

IN describing *Gentiana ciliata* of the European mountains, a characteristic species of the Alps with linear-lanceolate leaves and large blue corollas with ciliate lobes, Linnaeus gave the range: "*Habitat in Helvetiae, Italiae, Canadae montibus.*"¹ The description and references indicate clearly the European plant, so that there has never been any doubt regarding the true identity of *G. ciliata*; but no Fringed Gentian has ever been known from the "mountains of Canada" [of Linnaeus's time, *i. e.* presumably Quebec]. Consequently, there has been doubt as to what Canadian plant Linnaeus saw which could have been confused with the European *G. ciliata*, described "angustifolia" and "corollis quadrifidis margine ciliatis." The New Englander naturally thinks of *G. crinita* but that species has the upper leaves ovate or ovate-lanceolate and broadly rounded or subcordate at base and Linnaeus would hardly have identified it with the narrow-leaved *G. ciliata*. Furthermore, in his herbarium, as shown by memoranda made at various times by Asa Gray, Linnaeus had *G. crinita* set apart as a distinct species though under an unpublished name.

In 1860 the late Dr. Charles Pickering collected at Quebec a gentian which was identified by Dr. Gray in the *Synoptical Flora* as *G. serrata* Gunn., a Scandinavian plant which it somewhat suggests, and to which Gray referred a large number of American plants now

¹ L. Sp. Pl. ed. 2: 334 (1762).

recognized as wholly distinct American species,—*G. nesophila* Holm of western Newfoundland, Anticosti and the Mingan Islands; *G. procera* Holm, a large-flowered plant extending from Manitoba eastward to Niagara County, New York; *G. Macounii* Holm, of the Canadian prairies eastward to James Bay; and other endemic and very characteristic species occurring from the Rocky Mountains to the Sierra Nevada. The Pickering specimen preserved in the Gray Herbarium is a dwarf and hardly recognizable individual, but in various details it is clearly not the Norwegian *G. serrata* but belongs in the American series of species already ably monographed by Dr. Theodor Holm,¹ who has clearly pointed out many characters separating the group of American plants from the European. For want of a better place to put it the Pickering specimen had recently been tentatively placed by the present writer with the Anticosti and Newfoundland *G. nesophila*; and in 1916 Brother Marie-Victorin distributed as *G. nesophila* from L'Islet, about forty miles east of Quebec, fruiting and somewhat fragmentary specimens which clearly belong with the Pickering plant but like it are not satisfactorily identified with the Anticosti and Newfoundland material. And finally, thanks to the intensive botanizing of Brothers Victorin and Rolland, a beautiful series of the plant is at hand from both above and below the city of Quebec. These new collections, showing abundant specimens in flower and fruit and in all sizes from small and simple individuals to large freely branching plants, at once demonstrate that the plant from the neighborhood of Quebec is a thoroughly distinct and hitherto unrecognized species with affinities about midway between *G. Macounii*, *procera*, *nesophila* and *crinita*. This species, with which it is a keen pleasure to associate the name of the untiring investigator of the flora of the Province of Quebec who has brought together the first adequate representation of the plant, is apparently typical of the tidal shores of the St. Lawrence for about fifty miles, from Cap Rouge to L'Islet. This species is illustrated in Plate 139, kindly prepared by Miss Amelia Brackett of Radcliffe College. Brother Victorin states that it "is the only common Gentian in the neighborhood of the city of Quebec. It is distinctly a riparian species, growing on the tidal shores, often within the reach of high tides. I have found it plentifully everywhere I went on the shores. It is interesting to note that neither you nor I ever found it from

¹ Ottawa Nat. xv. 176-183 (1901).

Rivière-du-Loup eastward." But, since the tide extends with considerable strength to the outlet of Lake St. Peter, it is probable that its western limit is well beyond Cap Rouge. It may also have a more extended eastern range, but in several seasons at Rivière-du-Loup and at Bic the present writer has never met the plant.

The great interest of the new species, in connection with the European *G. ciliata*, lies in the fact that the small and unbranched specimens of Brother Victorin's material laid upon sheets of *G. ciliata* are quite indistinguishable from it until the technical details are examined. The technical differences are numerous: *G. ciliata* being a perennial with creeping rhizomes, the Quebec plant annual or biennial; and *G. ciliata* having the calyx less deeply cleft and the corolla-lobes strongly fimbriate on the lower margins, the Quebec plant having the lobes with only short marginal teeth. The superficial resemblance of the two is so striking, however, that it would seem as if we at last know what plant of Canada led Linnaeus to cite his *G. ciliata* from "Helvetiae, Italiae, Canadae montibus." In August, 1749, Pehr Kalm botanized extensively about Quebec,—from Trois Rivières on the west to Les Eboullement on the east, thus covering the whole range of the gentian of the tidal shores. It seems wholly probable, in fact almost inevitable, that this pupil of Linnaeus should have found the gentian, which flowers in August, and that Linnaeus, identifying it with the plant of the mountains of Switzerland and Italy assigned it a mountain habitat in Canada as well.

This endemic plant of the St. Lawrence should be called:

GENTIANA (CROSSOPETALAE) Victorinii, n. sp. Biennis; caule simplici vel cum ramis valde ascendentibus instructo 3-4 dm. alto glabro 4-angulato; foliis imis rosulatis spathulatis brevibus, mediis superioribusque 4-9-jugis lineari-lanceolatis acutis vel acutiusculis paulo carnosius 2-5.5 cm. longis 2-6 mm. latis; pedunculis 2-9 cm. longis; calycibus herbaceis inequaliter ad mediam 4-lobatis, lobis apice subulato-acuminatis longioribus lanceolatis 0.6-1.5 cm. longis, brevioribus ovatis 0.45-1.2 cm. longis, carinis glabris vel vix granulosis; corollis azureis 2-4 cm. longis ad mediam partem 4-lobatis, lobis oblongo-obovatis obscure venosis valde ascendentibus apice rotundato interdum etiam marginibus dentatis vel lacerato-fimbriatis; filamentis alatis eciliatis; ovario stipitato, stipite circa 5 mm. longo, stylo circa 2 mm. longo; capsula corolla brevioris sessile; seminibus valde papillois.

Biennial: stem simple or with strongly ascending branches, 1-4 dm. high, glabrous, 4-angled: leaves 4-9 pairs below the primary peduncle; the lower spatulate; the middle and upper linear-lanceolate,

acute or acutish, somewhat fleshy, the median 2–5.5 cm. long, 2–6 mm. wide: peduncles 2–9 cm. long: calyx herbaceous, unequally cleft to about the middle, 4-lobed; the lobes all subulate-acuminate at tip; the longer lanceolate, 0.6–1.5 cm. long; the shorter ovate, 0.45–1.2 cm. long; the keels glabrous or only obscurely granulose: corolla deep-blue, 2–4 cm. long, cleft nearly half its length, 4-lobed; the lobes oblong-obovate, only obscurely veiny, strongly ascending, uniformly dentate to lacerate-fimbriate on summit and often on the sides: filaments winged, naked: pistil fusiform, stipitate; the stipe about 5 mm. long; style definite, about 2 mm. long; stigma subreniform: mature capsule shorter than the corolla, becoming sessile: seed conspicuously papillose.—QUEBEC: tidal shores of the River St. Lawrence from above the city of Quebec to L'Islet. The following specimens have been studied. Cap-Rouge, près du Pont de Québec, sur le rivage à portée de la marée haute, August 9, 1922, *Fr. Rolland*, no. 16,070; Cap-Rouge, un mille plus haut que le Pont de Québec, sur le rivage à portée de la marée, August 9, 1922, *Fr. Marie-Victorin*, no. 16,073 (TYPE in Gray Herb.); Quebec, 1860, *Charles Pickering*; rivage, à portée de la marée, St.-Laurent de l'Île d'Orleans, August 6, 1922, *Marie-Victorin*, no. 17,071; rocks near the shore, L'Islet, August, 1916, *Marie -Victorin*, no. 3183.

The relationships of *G. Victorinii* and the other species of the section *Crossopetalae* in eastern America are indicated in the appended key.

- A. Upper leaves ovate to ovate-lanceolate, broadly rounded or subcordate at base: upper half of the corolla-lobes fimbriate with a uniformly long fringe 2–6 mm long: capsule distinctly stipitate *G. crinita* Froel.
(Eastern states, north to Iowa, Wisconsin, Michigan, southern and eastern Ontario, western and central New York, Rutland Co., Vermont, Grafton Co., New Hampshire and central Maine.)
- A. Upper leaves linear, linear-lanceolate, narrowly oblong or spatulate; fringe of corolla-lobes of varying lengths, often long below but of short triangular teeth (less than 2 mm. long) above; capsule sessile or stipitate B.
- B. Upper leaves linear or linear-lanceolate, acute or acutish: calyx with all 4 lobes attenuate or the 2 broader at least acute C.
- C. Elongate leaves (above the basal rosette) 8–13 pairs below the primary peduncle: calyx-lobes with strongly papillose-scabrous keels; the longer lobes 1–3 cm. long: corolla 2–5.5 cm. long, with spreading-ascending lobes: ovary nearly or quite sessile. *G. procera* Holm.
(Manitoba and Iowa eastward to western New York.)
- C. Elongate leaves (above the basal rosette) 3–7 (–9) pairs below the primary peduncle: calyx-lobes with smooth or only granulose keels; the longer lobes 0.5–1.5 cm. long; corolla 2–4 cm. long, with strongly ascending lobes.

Elongate leaves 4–9 pairs, linear-lanceolate, 2–6 mm. wide, ascending high on the plant: primary peduncle and its flower $\frac{1}{5}$ – $\frac{2}{5}$ (exceptionally $\frac{1}{2}$) the entire height of the plant, 5.5–13.5 cm. long: the 2 broad calyx-lobes subulate-acuminate at tip: filaments naked: ovary with stipe about 5 mm. long *G. Victorinii* Fernald.
(St. Lawrence River, Quebec Co. to L'Islet Co., Quebec.)

Elongate leaves 3–7 pairs, linear, 1.5–4 mm. wide, mostly confined to the lower half of the plant: primary peduncle and its flower $\frac{2}{3}$ – $\frac{4}{5}$ the entire height of the plant, 0.6–2.1 dm. long: the 2 broad calyx-lobes merely acute or short-acuminate: filaments ciliate near the middle: ovary sessile or with short thick stipe *G. Macounii* Holm.
(Montana and Alberta east to Minnesota and Rupert House, James Bay.)

B. Upper leaves oblong, spatulate or oblanceolate, obtuse or rounded at tip, mostly crowded at the lower third of the plant: the primary peduncle and its flower $\frac{2}{5}$ – $\frac{9}{10}$ the entire height of the plant: calyx with glabrous keels; its 2 broad lobes obtuse or merely subacute: corolla-lobes merely dentate, divergent: ovary sessile or subsessile *G. nesophila* Holm.
(Western Newfoundland and Anticosti and Mingan Islands, Quebec.)

GRAY HERBARIUM.

EXPLANATION OF PLATE 139.

Gentiana Victorinii, n. sp. Fig. 1, large plant, $\times\frac{1}{2}$; fig. 2, small plant, $\times\frac{1}{2}$; fig. 3, calyx laid open, $\times 1$; fig. 4, corolla laid open to show stipitate ovary and naked filaments, $\times 1$; fig. 5, fruit, $\times 1$.

NOTES ON NEW ENGLAND HEPATICAE,—XVII.¹

ALEXANDER W. EVANS.

(Continued from page 83.)

3. BAZZANIA DENUDATA (Torr.) Trevis. Mem. Ist. Lomb. **13**: 414. 1877. *Mastigobryum denudatum* Torr., G. L. N. Syn. Hep. 216. 1845. *Jungermannia denudata* Torr. l. c., as synonym, not Nees. *Mastigobryum ambiguum* Lindenb. (in part) op. cit. 217. 1845. On rocks, more rarely on rotten logs. Maine: Greenville, A. W. E. (listed as *B. tricrenata* by the writer, RHODORA **14**: 17. 1912); Round Mountain Lake, Franklin County, and Jordan Mountain, Mt. Desert, A. Lorenz. New Hampshire; base of Mt. Washington, J.

¹ Contribution from the Osborn Botanical Laboratory.